C. Remarks

Claims 33 to 45 remain pending in the subject case, with Claim 33 being the sole independent claim. Claim 33 has been rephrased to more clearly define the present invention. Support for this amendment may be found throughout the specification, particularly on pages 9 and 10.[1] Claims 34 and 38 have been amended for clarification. Support for this amendment may be found at page 10, line 2. Reconsideration of the present claims is expressly requested.

Claims 33 to 45 were rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 5,863,882 (Lin) in view of WO 97/43385 (Horner) and U.S. Patent Nos. 3,720,606 (Horney); 4,925,707 (Vinod) and 4,839,212 (Blyth). The grounds of rejection are respectfully traversed.

Prior to addressing the merits of rejection, Applicants would like to review some of the key features and advantages of the presently claimed invention. That invention is directed to an aqueous odor controlling bacterial composition. This composition includes a bacterium, which is capable of forming a spore and which can become active when exposed to organic material and digest this material. The composition also includes at least one adhering agent in an amount sufficient to adhere the bacterium to a surface upon application of the composition thereto and allow the bacterium to remain adhered to

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[1] Applicants note that the aqueous composition in the present invention inherently has a "sufficient amount" of the adhering agent to adhere the bacterium to the surface upon application thereto and to allow the bacterium to remain adhered to the surface so that the bacterium can be exposed to the odor-causing organic material and become active, because such an amount is required to form a treated surface as discussed, for example, on pages 9 and 10 of the specification.

the surface so that it can be exposed to the odor-causing organic material and become active. When the dormant bacterium is activated, it can digest the odor-causing material, thereby controlling odor that otherwise would be produced.[2] Once the odor has been eliminated, the adhered bacterium returns to its dormant state, and a subsequent application of the odor-causing organic material will once again activate the bacterium, thereby repeating the deodorizing process. Therefore, the presently claimed composition may be used to provide a long-lasting, preventative odor controlling treatment to various surfaces.

In addition to being able to eliminate odors upon multiple exposures to the odor-causing material over time, the presently claimed composition, when applied to the

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2/ Specifically, when the dormant bacterium bonded to the surface is exposed to organic residue, the bacterium becomes active in the presence of moisture and produces enzymes, which start breaking down the residue. The bacterium consumes the broken-down residue as a food source and multiplies to produce "offspring" bacteria. These "offspring" bacteria are identical to the adhered bacterium ("parent" bacterium) with the exception that they are not bonded to the surface.

The "parent" and "offspring" bacteria, in the presence of the moisture, continue to produce enzymes, and provided there is still an organic residue present, those enzymes continue to break down the residue. Both the "parent" and "offspring" bacteria employ the broken-down residue as a food source and both continue to multiply, generating even more free "offspring" bacteria. This process continues until either the moisture is gone (hindering the production of enzymes) or the organic residue is digested (hindering the feeding and reproduction cycle of the bacteria). At that point, all the bacteria become dormant and wait for the next exposure to moisture/organic residue.

The "waste" by-products of this enzyme generation, organic residue break-down, consumption of broken down residue as a food source and reproduction of bacteria are carbon dioxide, water, and, eventually, dormant "free" bacteria spores. While carbon dioxide dissipates into the air, the water evaporates and the "free" bacteria spores can be removed by, for example, cleaning, the "parent"bacteria, having reverted back to their dormant state, are still bonded to the surface. Therefore, the adhered bacteria is still available for a subsequent exposure to odor-causing organic material, which allows the entire deodorizing process to be repeated without any need for re-application of the bacteria.

surface, results in retention of its odor-protective qualities even if the surface is subjected to a physical force, such as cleaning or being walked upon when the surface is a carpet, or to environmental factors, which are detrimental to bacterial cells, such as humidity, heat, UV radiation, chemical agents, and the like (page 13, line 33, to page 14, line 8; page 27, lines 9 to 16). In fact, even if the surface is disturbed before the odor-causing material has been consumed and the "offspring" bacteria are removed as a result, the adhered "parent" bacteria are able to replace the removed "offspring" bacteria through the replication process described above, so that the deodorizing can be completed. This is not possible using conventional deodorizing or cleaning products, such as a Bi-chem® Bioclean[3] or enzyme-containing detergents, which must be re-applied under these circumstances. The adhering agent in accordance with the present invention makes it possible to adhere the bacterium to a surface and protects the adhered bacterium (page 11, line 35, to page 12, line 2). Furthermore, the adhering agent can protect the surface itself from damage.

Several types of bacteria and their enzymes are known for their ability to digest organic materials. However, these bacteria conventionally have not been used in a composition that can be applied to a surface letting the bacteria become adhered to this surface by an adhering agent, which is present in the composition. Specifically, according to conventional practice, bacteria are merely placed onto surfaces via compositions, such as detergents and spot-on cleaners, which do not contain adhering agents. Therefore, these bacteria are easily removed from the surface during normal usage. This leads to reduced

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3/ See IDS filed November 19, 2004.

odor control effectiveness and a shortened duration of deodorizing effects. The presently claimed invention solves the above-mentioned shortcomings of the prior art.

The documents cited by the Examiner do not affect the patentability of the presently claimed invention. Lin is directed to surface cleaners containing surfactants, both with and without an abrasive, for removing soils, dirt, dried urine, stubborn stains, deposit, and scum from sinks, toilet bowls and other bathroom fixtures (col. 1, lines 13 to 16). These cleaners are applied to a bathroom fixture, such as a sink or a toilet bowl, by spraying or being squeezed out of a container directly onto a surface or brush. The formula is then left on the surface or scoured against the surface with a brush for not less than 10 minutes. The product is then flushed or rinsed with water and discharged from the fixture (col. 3, lines 11 to 17).

While the composition taught by Lin may contain suspended bacterial spores, this composition does not contain an adhering agent as presently claimed. In fact, Applicants respectfully submit that Lin contains disclosure that teaches away from including an adhering agent. Specifically, the composition in Lin, as mentioned above, is flushed away by water after use. An adhering agent would prevent removal of the composition from, for example, the toilet bowl, resulting in build-up of scum, which is precisely what Lin is trying to avoid.

Horner is directed to a detergent composition comprising a combination of different α-amylases. However, while it teaches that these amylases are effective in washing soiled garments or dishes, Horner, like Lin, fails to disclose or suggest an aqueous composition of an adhering agent and the bacterium as presently claimed.

The Examiner alleged in the Office Action that Horner teaches controlling odor on soft and hard surfaces using a composition containing anti-soil agents and enzymes. Applicants submit, however, that Horner, at most, suggests that anti-soil agents may be incorporated only into laundry machine detergents (page 10, lines 30 to 37). Anti-soil agents are not taught as useful in any other type of a detergent, such as a hard surface cleaner.

Furthermore, Applicants submit that there is no teaching or suggestion to use a spore-forming bacterium to either replace, or supplement, α-amylases in Horner's laundry detergents. Horner states that α-amylases are essential components of the detergent composition due to their improved stability in detergent systems (page 3, lines 19 to 21 and page 4, lines 6 to 8). Therefore, clearly, Horner explicitly teaches away from replacing these enzymes.

Furthermore, as taught in Lin, spore-forming bacteria are very sensitive to their environment, which limits the types and strengths of cleaners and surfactants that can be used in surface cleaning compositions. (col. 3, lines 32 to 36; col. 5, lines 46 to 49). In fact, Lin states that its ingredients are specifically selected not to negatively affect the microorganisms and do not include "surfactants usually used in surface cleaning". Lin clearly does not suggest that its spore-forming bacteria should, or even can, be added to the cleaning composition in Horner. In fact, Lin teaches away from such a combination by suggesting that "usual" surfactants, which are used in Horner's laundry detergent, may adversely affect the activity of the dormant bacteria. Therefore, there is clearly no

motivation to simply add spore-forming bacteria to the laundry detergent in Horner nor is there a reasonable expectation of success.

Also, there is no motivation to add anti-soil agents from Horner's soft surface (e.g., fabric) laundry detergents to Lin's hard surface (e.g., toilet) cleaners. As discussed above, the use of anti-soil agents in Horner is limited to laundry detergents (page 10, lines 30 to 37). There is no disclosure or suggestion that these agents can or should be used in hard surface cleaners.

In fact, Applicants respectfully submit that Horner implicitly teaches away from such a substitution. Specifically, while Horner teaches both hard and soft surface cleaners, the anti-soil agents are recited only in the context of the soft surface cleaners. Furthermore, because, as mentioned above, Lin teaches that the sporulated bacteria are very sensitive to their environment, there is no motivation to add to the composition in Lin anti-soil agents, which Lin suggests may negatively affect the bacteria.

The Examiner alleged in the Office Action that surfactants in Horner will adhere to organic deposits and function as adhering agents. Applicants respectfully disagree with this interpretation.

The adhering agent in the claims is explicitly recited for adhering a bacterium to a surface being cleaned, and not for its own adherence to organic deposits. The claims clearly differentiate between organic deposits and the surface being cleaned, i.e., adherence to the surface is not equivalent to adherence to the organic deposits. In fact, the Examiner will appreciate that surfactants in cleaning compositions are designed to remove dirt from surfaces without themselves becoming adhered to the surface. If such

surfactants were adhered to the surface, they would not perform their intended function and further contaminate the site being cleaned.

In that connection, the composition in Horner, as that in Lin, is intended to be washed away during use. Neither Lin nor Horner discloses or suggests providing a composition with ingredients, resulting in adhesion of bacteria to the surface being cleaned by an adhering agent, allowing the bacteria to be exposed to subsequently deposited organic materials. In fact, because the cleaning compositions in these documents are intended to be washed away during use, there is no motivation to formulate the compositions to allow for adhesion. To the contrary, based on the disclosures in Lin and Horner a skilled artisan would be motivated not to enhance, but to reduce, adhesion.

Horney is directed to a formulation for controlling odor from sewage. While Horney discloses that the formulation may contain certain bacteria, it fails to disclose or suggest an adhering agent as presently claimed.

Both Blyth and Vinod are directed to conventional methods of protecting carpet fibers. Blyth discloses a process of applying a spin finish containing stain blockers to nylon fibers during a melt polymerization process. Blyth also teaches forming a coating using fluorochemicals. Vinod is directed to the application of a stain blocker to the carpet after the carpet has been manufactured. Neither Blyth nor Vinod, however, discloses or suggests combining its stain-blocking compounds with bacteria in an aqueous composition prior to application to the carpet or its use as an adhesive.

In fact, the intended use of stain-blockers and fluorochemicals in conventional carpet applications, such as those in Blyth and Vinod, is to prevent adhesion

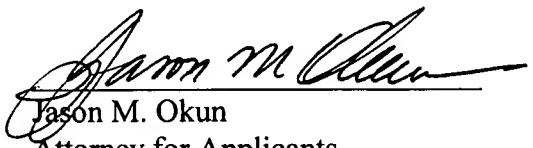
of other materials to the carpet, which is directly opposite to the effect the presently claimed invention is capable of producing. There is clearly no motivation to use these compounds as agents for adhering anything to the carpet.

Furthermore, it is clear that an application of an aqueous composition containing bacteria onto a carpet already treated with a stain-blocker does not result in the stain-blocker being incorporated into this aqueous composition. If such were the case, the treatment in Blyth and Vinod would cease to perform its intended function and would likely be washed away. Thus, clearly, neither Blyth nor Vinod would motivate a skilled artisan to use a stain blocker in an aqueous composition to enhance adherence of bacteria to the surface being treated.

In conclusion, Applicants respectfully submit that the cited documents, whether considered separately or in any proper combination, do not disclose or suggest the elements presently claimed. Therefore, Applicants respectfully request that the outstanding objection and rejections be withdrawn and the present case be passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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